PUDOVIK, A.N.; GOLITSYNA, G.A.

Reactions of addition of alkyleneglycolophosphorous and phosphorothioic acids. Zhur. ob. khim. 34 no. 3:276-821 Mr '64. (MIRA 17:6)

1. Institut organicheskoy khimii AN SSSR, Kazan'.

PUDOVIK, A.N.; FAYZULLIN, E.M.

Mechanism of reactions of phosphorus acid chlorides with oxides of alkenes and dienes. Zhur. ob. khim. 34 no. 3:882-889 Mr '64. (MIRA 17:6)

1. Kazanskiy gosudarstvennyy universitet im. V.I.Ul'yanova-Lenina.

PUDOVIK, A.N.; YEVSTAF'YEV, G.I.

Diphosphonic glycols, diphosphonic diamines and some of their reactions. Zhur. ob. khim. 34 no. 3:890-892 Mr '64. (MIRA 17:6)

1. Kazanskiy gosudarstvennyy universitet.

PUDOVIK, A.N.; KUZOVLEVA, R.G.

Reactions of diene synthesis involving esters of α- and β-carbethoxyvinylphosphinic acid. Zhur. ob. khim. 34 no. 3: 1031-1032 Mr '64. (MIRA 17:6)

1. Kazanskiy gosudarstvennyy universitet.

L 17946-65 EWI(m)/EPF(c)/EWP(j)/T Pc-4/Pr-4 RM
ACCESSION NR: AP5002560 S/0079/64/034/007/2213/2218

AUTHOR: Pudovik, A. N.; Kashevarova, E. I.; Gorchakova, V. M. B

TITLE: Mixed anhydrides of acrylic and methacrylic acids and acid esters of phosphoric, phosphinic, and phosphinous acids

SOURCE: Zhurnal obshchey khimii, v. 34, no. 7, 1964, 2213-2218

TOPIC TAGS: ester, phosphinic acid, phosphoric acid, anhydride, organic synthetic process

Abstract: Mixed anhydrides of acrylic and methacrylic acid and acid esters of phosphoric, phosphinic, and phosphinous acids(with alkyl radicals from C to C_4) were synthesized. The mixed anhydrides of acrylic and methacrylic acid with acid esters of phosphoric and phosphinic acids were found to be stable under normal conditions, but at increased temperatures they disproportionated readily, forming the anhydrides of acrylic or methacrylic acid and tetraalkyl pyrophosphates or pyrophosphinates. In contrast to the mixed anhydride containing pentavalent phosphorus, dialkylacryl and dialkylmethacryl phosphites, produced from the potassium salts of acrylic and methacrylic acid and the chlorides of dialkylphosphorous acids, did not undergo disproportionation when distilled under vacuum. When heated, these

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L 17946-65
ACCESSION NR: AP5002560

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phosphites underwent thermal rearrangement, forming di(dialkylphosphonemethyl) diketene or dimethyldi(dialkylphosphonemethyl)diketene. All of the mixed anhydrides were found to polymerize readily in the presence of benzoyl peroxide and azobisisobutryonitrile, forming viscous or solid polymers, soluble in dimethylformamide, but insoluble in alcohol, acetone, benzene, and dioxane. Orig. art. has 4 tables and 1 graph.

ASSOCIATION: Kazanskiy gosudarstvennyy universitet (Kazan' State University)

SUBMITTED: 27Mar63 ENCL: 00 SUB CODE: OC, GC

NO REF SOV: 010 OTHER: 001 JPRS

Card 2/2

L 17955-65 EWT(m)/EPF(c)/EWP(j) Pc-4/Pr-4 RPL RM
ACCESSION NR: AP5002568 S/0079/64/034/007/2470/2471

AUTHOR: Pudovik, A. N.; Khusainova, N. G.; Aladzheva, I. M. 65

TITLE: Addition of nucleophilic reagents to the diethyl ester of gamma, gamma-dimethylallenylphosphinic acid

SOURCE: Zhurnal obshchey khimii, v. 34, no. 7, 1964, 2470-2471

TOPIC TAGS: phosphinic acid, ester, catalysis, cyanide compound, isomerization

Abstract: The authors propose that the previously described reactions of nucleophilic reagents with allenyl cyanide should be considered as occurring with its preliminary isomerization to the nitrile of tetrolic acid, to which the nucleophilic reagents are then added. Experiments on the addition of a catalytic amount of sodium ethylate or triethylamine to dialkyl esters of allenylphosphinic acid, resulting in total isomerization of allenylphosphinates to esters of propynylphosphinic acid, confirmed this hypothesis. The addition of methanol and ethanol to the diethyl ester of gamma,gamma-dimethylallenylphosphinic acid produced an addition product to which the structure 1-diethylphosphone-2-alkoxy-3-methylbutene-1 was ascribed. Addition of diethylphosphorous acid to the allene studied produced 1,2-di(diethylphosphone)-3-methylbutene-1. Orig. art. has 4 formulas.

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L 17955-65
ACCESSION NR: AP5002568

ASSOCIATION: Kazanskiy gosudarstvennyy universitet (Kazan' State University)

SUBMITTED: 28Feb64 ENCL: 00 SUB CODE: OC, GC

NO REF SOV: 003 OTHER: 002 JPRS

Card 2/2

L 17954-65 EWT(m)/EPF(c)/EWP(j) Pc-4/Pr-4 RM
ACCESSION NR: AP5002569 S/0079/64/034/007/2471/2472

AUTHOR: Pudovik, A. N.; Fayzullin, E. M.; Mukhametzyanova, E. Kh.

TITLE: Reactions of diglycide ether with dialkylphosphorus acid chlorides

SOURCE: Zhurnal obshchey khimii, v. 34, no. 7, 1964, 2471-2472

TOPIC TAGS: ether, phosphorus acid, chloride, ester, sulfur

Abstract: In the reaction of diglycide ether with chlorides of phosphorus acids, the oxide ring opens on the side of the primary carbon atom, forming beta-chloro-beta'-glycidlisopropyldialkyl esters of phosphorous acid. Sulfur was added to one of the products -- beta-chloro-beta'-glycidyliso-propylidiethyl ester of phosphorous acid, producing the beta-chloro-beta' -glycidylsopropyldiethyl ester of thipphosphoric acid. In the reaction of diglycide ether with two moles of the chloride of diethylphosphorous acid, addition occurred at both oxide rings, forming tetraethyl-alpha, alpha'-dichloromethyldiethylene glycol diphosphate. Orig. art. has 2 formulas and 1 table.

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L 17980-65
ACCESSION NR: AP4047047 O

SUBMITTED: 23Aug63 ENCL: 00 SUB CODE: GC, MT

NO REF SOV: 000 OTHER: 000

Card 2/2

L 17959-65 EWT(m)/EPF(c)/EWP(j) Pc-4/Pr-4 RM

ACCESSION NR: AP5002618 S/0079/64/034/008/2582/2585

AUTHOR: Pudovik, A. N.; Muratova, A. A ; Savel'yeva, V. A.

TITLE: Reactions of esters of alkylphosphinous and phosphorus acids with alkylene bromides and dihalodiesters

SOURCE: Zhurnal obshchey khimii, v. 34, no. 8, 1964, 2582-2585

TOPIC TAGS: ester, phosphinic acid, phosphorus acid, organic phosphorus compound, halogenated organic compound, bromide

Abstract: The reactions of the diethyl esters of methyl-, ethyl-, n-propyl-, and n-butylphosphinic acids with dibromoethane and of the diethyl esters of ethyl- and n-propylphosphinic acids with 1,4-dibromobutane, 1,2- and 1,4-dibromobutene, and beta, beta'-dibromodiethyl ether were studied. Cyclic esters of 1,3-dioxa-2-oxiodo-2-alkyl-2-phosphiranes were produced in 45-80% yield in the reaction of alkylphosphinic acid esters with dihaloalkylenes $\overline{Hal}(CH_2)Hal$, where $n > 1$. The reactions of the ethyl-, n-propyl-, and n-butyl esters of phosphorous acid with 1,4-dibromobutane and beta,beta'-dibromodiethyl ether and the ethyl and n-propyl esters of phosphorous acid with 1,3-dibromopropane, 1,4-dibromobutene-2, and dibro-

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L 17959-65

ACCESSION NR: AP5002618

moethane established the possibility of producing heterocyclic phosphorus-containing compounds: 1-oxa-2-oxido-2-alkoxy-2-phosphiranes. Orig. art. has 2 formulas and 2 tables.

ASSOCIATION: Kazanskiy gosudarstvennyy universitet (Kazan' State University)

SUBMITTED: 26Jun63 ENCL: 00 SUB CODE: OC, GC

NO REF SOV: 003 OTHER: 006 JPRS

Card 2/2

L 18279-65 EWT(m)/EPF(c)/EWP(j) Pc-4/Pr-4 RM

ACCESSION NR: AP5002985 S/0079/64/034/009/2902/2905

AUTHOR: Pudovik, A. N.; Konovalova, I. V.; Dedova, L. V.

TITLE: Reaction of dialkylthiophosphorus acids with certain carbonyl-containing compounds

SOURCE: Zhurnal obshchey khimii, v. 34, no. 9, 1964, 2902-2905

TOPIC TAGS: organic phosphorus compound, ester, acetic acid

Abstract: Reactions of dialkylthiophosphorous acids with carbonyl compounds were studied as a comparison with previous studies of the reactions of dialkylphosphorous acids with acetophosphinic and pyruvic esters and acetophenone in the presence of an alkaline catalyst, which were accompanied by rearrangement of the alpha-hydroxyalkylphosphinic esters formed in the first step to phosphates; this study was aimed at determining the influence of replacement of the phosphinic group by the less electronegative thiophosphinic group on these reactions. The esters of alpha-hydroxy-alpha-methyl (dialkylthiophosphone) acetic, alpha-hydroxy(alpha-diethylthiophosphone) phosphinic, and alpha-hydroxy-alpha-acetoethylthiophosphinic acids formed in the addition of dialkylthiophosphorous acids to the ethyl ester of pyruvic acid, acetophosphinic ester, and diacetyl in the presence of sodium alcoholate.

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L 18279-65
ACCESSION NR: AP5002985

are rearranged during the reaction to dialkyl(alpha-carbethoxyethyl) thiosphosphates, diethyl(alpha-diethylthiophosphone)ethyl phosphate, and diethyl-alpha-acetoethyl thiophosphate. In the reaction of diethylthiophosphorous acid with acetophenone, the diethyl ester of alpha-hydroxy-alpha-phenylethylphosphinic acid was formed in only a small yield, most of it decomposing to the starting materials upon distillation. It was concluded that replacement of the phosphinic group by the thiophosphinic group, exhibiting a smaller induction effect as a result of the lower electronegativeity of sulfur in comparison with oxygen, exerts a substantial influence on the ability of alpha-hydroxythiophosphinic esters for rearrangement. Orig. art. has 7 formulas and 1 table.

ASSOCIATION: Kazanskiy gosudarstvennyy universitet (Kazan' State University)

SUBMITTED: 01Jul63 ENCL: 00 SUB CODE: OC, GC

NO REF SOV: 005 OTHER: 000 JPRS

Card 2/2

L 18277-65 EWT(m)/EPF(c)/EWP(j) Pc-4/Pr-4/Pa-4 RM

ACCESSION NR: AP5002986 S/0079/64/034/009/2905/2907

AUTHOR: Pudovik, A. N.; Konovalova, I. V.; Dedova, L. V.

TITLE: Reaction of incomplete esters of phosphinous acids with pyruvic ester and acetophenone

SOURCE: Zhurnal obshchey khimii, v. 34, no. 9, 1964, 2905-2907

TOPIC TAGS: ester, phosphinic acid, pyrolysis, polystyrene

Abstract: The addition of incomplete esters of ethylphosphinous acid to the ethyl ester of pyruvic acid and acetophenone in the presence of sodium alcoholate was studied. The alkyl esters of ethyl-alpha-hydroxy-alpha-carbethoxyethylphosphinic and (alpha-hydroxy-alpha-phenylethyl) ethylphosphinic acids formed were found to be rearranged during the reaction to alpha-carbethoxyethylalkyl and alpha-phenlethylalkyl esters of ethylphosphinic acid. Pyrolysis of the (alpha-phenylethyl)ethyl ester of ethylphosphinous acid at 170° at a residual pressure of 25 mm resulted in the formation of styrene in 76% yield. Orig. art. has 7 formulas and 1 table.

ASSOCIATION: Kazanskiy gosudarstvennyy universitet (Kazan' State University)

SUBMITTED: 01Jul63 ENCL: 00 SUB CODE: OC, GC

NO REF SOV: 002 OTHER: 000 JPRS

Card 1/1

L 18274-65 EWT(m)/EPF(c)/EWP(j) Pc-4/Pr-4 RM
ACCESSION NR: AP5002987 S/0079/64/034/009/2907/2910

AUTHOR: Pudovik, A. N.; Aladzheva, I. M.; Patrusheva, N. A.

TITLE: Reaction of chlorides of dialkylphosphorus acids with 2,5-dimethylhexyne-3-diol-2,5

SOURCE: Zhurnal obshchey khimii, v. 34, no. 9, 1964, 2907-2910

TOPIC TAGS: chloride, organic phosphorus compound, chemical reaction

Abstract: The reactions of chlorides of diethyl-, di-n-propyl-, and di-n-butylphosphorous acids with 2,5-dimethylhexyne-3-diol-2,5 (I) were studied. In the reaction of 1 mole of (I) with 2 moles of the dialkyl chlorophosphite in ether solution in the presence of an organic base, followed by distillation of the reaction products under vacuum, the phosphites formed underwent a rearrangement, and 2,5-dimethyl-4-(dialkylphosphone) hexadiene-2,3-ols-5 (A) (20-38% yield) and 2,5-dimethyl-3, 4-di(dialkylphosphone)hexadienes-2,4 (7-30% yield) were obtained. These reactions are compared with the analogous reactions of dialkylchlorophosphites with 2-butynediol-1,4, producing only conjugated dienes and no allene-type products. The mechanisms of the reactions studied are discussed and the infrared spectra of the reaction products, confirming their structures, are considered. Orig. art. has 6 formulas and 1 table.

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L 18274-65
ACCESSION NR: AP5002987

ASSOCIATION: Kazanskiy gosudarstvennyy universitet (Kazan' State University)

SUBMITTED: 01Jul63 ENCL: 00 SUB CODE: OC, GC

NO REF SOV: 002 OTHER: 001 JPRS

Card 2/2

L 41307-65 EWT(m)/EPF(c)/EPR/EWP(j) Pc-4/Pr-4/Ps-4 RPL WW/RM
ACCESSION NR: AP5009935 UR/0079/64/034/010/3240/3243

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27
B

AUTHOR: Pudovik, A.N.; Kashevarova, E. I.; Goloven'kin, G. L.

TITLE: Reaction of dialkylphosphoric and dialkylphosphorous acid chlorides with ethylene glycol esters of acrylic and methacrylic acids

SOURCE: Zhurnal obshchey khimii, v. 34, no. 10, 1964, 3240-3243

TOPIC TAGS: phosphoric acid, phosphorous acid, chloride, ethylene, blycol, ester

Abstract: Dialkyl (acroyleneglycol)- and dialkyl(methacroylethyleneglycol) phosphates were prepared by reaction of dialkylphosphoric acid chlodires with ethylene glycol esters of acrylic and methacrylic acids in ether solution in the presence of triethylamine. Dialkyl(methacroylethyleneglycol) phosphites were prepared by reaction of dialkylphosphorous acid chlorides with the ethyleneglycol ester of methacrylic acid. The presence of trivalent phosphorus in the raction product was confirmed by infrared spectra and through the addition of sulfur, to give diethyl(methacroylethyleneglycol) thiophosphate. Isomerization with ethyl iodida produced the ethyl(methacroylethyleneglycol) ester of ethylphosphinic acid. Side products of triethyl phosphite and ethyldi(methacroylethyleneglycol) phosphite were produced in the formation of diethyl (methacroylethyleneglycol) phosphite, through intermoleculat disporportionation

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L 41307-65

ACCESSION NR: AP5009935

of the main reaction product. Diisopropyl, dipropyl, and dibutyl chlorophosphites gave similar reactions with the ethyleneglycol ester of methacrylic acid. Orig. art. has 1 table.

ASSOCIATION: Kazanskiy gosudarstvennyy universitet (Kazan State University)

SUBMITTED: 03Jul63 ENCL: 00 SUB CODE: OC, GC

NO REF SOV: 003 OTHER: 001 JPRS

Card 2/2

L 38290-65 EPF(c)/EWP(j)/EWT(m) Pc-4/Pr-4 RM

ACCESSION NR: AP5011033 UR/0079/64/034/011/3848/3849

20
19
B

AUTHOR: Pudovik, A. N.; Konovalova, I. V.

TITLE: Reaction of trialkyl phosphites with esters of pyruvic and mesoxalic acids

SOURCE: Zhurnal obshchey khimii, v. 34, no. 11, 1964, 3848-3849

TOPIC TAGS: organic phosphorus compound, ester, thermochemistry

Abstract: The reaction of trialkyl phosphites with the methyl ester of pyruvic acid was found to proceed in two directions at increased temperatures, with participation of one or two molecules of the pyruvic ester -- forming dialkyl-alpha-alkyl-carbalkoxyethyl phosphates and 2,2,2,-trialkoxy-4, 5-dimethyl-4, 5-dicarbalkoxy-1,2,3-dioxaphospholanes. Under milder conditions (from -10 to 0°), the trialkyl phosphites reacted primarily with two molecules of pyrivuc ester, forming 1,3,2-dioxaphospholanes in 70-80% yield. Trimethyl and triethyl phosphites were found to react with the ethyl ester of mesoxalic acid exothermically, forming dialkyl-alpha,alpha-dicarbethoxyalkyl phosphates. No formation of cyclic compounds of the dioxaphospholane type was observed in these reactions. Orig. art. has 2 formulas.

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L 38290-65

ACCESSION NR: AP5011033

ASSOCIATION: Kazanskiy gosudarstvennyy universitet (Kazan State University)

SUBMITTED: 08Jun64 ENCL: 00 SUB CODE: OC, GC

NO REF SOV: 001 OTHER: 001 JPRS

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L 52798-65 EWT(m)/EPF(c)/EWP(j) Pc-4/Pr-4 RM

ACCESSION NR: AP5016185 UR/0079/64/034/012/3938/3942

AUTHOR: Pudovik, A. N.; Khusainova, N. G.; Ageyeva, A. B.

TITLE: Reactions of nucleophilic reagents with esters of propynylphosphinic acid

SOURCE: Zhurnal obshchey khimii, v. 34, no. 12, 1964, 3938-3942

TOPIC TAGS: phosphinic acid, ester, catalysis

Abstract: It was found that dialkylphosphorous acids, mercaptans, and amines are added to dialkyl esters of propynylphosphinic acid in the presence of alkaline catalysts (alcoholates of the alkali metals) or in the absence of catalysts (addition of amines: diethylamine and piperidine), to form mixtures of addition products containing one or two molecules of the nucleophilic reagents. The ratio of the products formed is determined by the ratio of the starting materials in the reaction mixture. Alcohols were found to add to dialkyl esters of propynylphosphinic acid, to form (dialkylphosphone)alkoxypropenes. At high temperatures (200-205°), the reaction of the propynylphosphinic ester with alcohols follows a nucleophilic substitution mechanism, forming trialkyl phosphates. Orig. art. has 7 formulas and 1 table.

Card 1/2

L 52798-65

ACCESSION NR: AP5016185

ASSOCIATION: Kazanskiy gosudarstvennyy universitet (Kazan State University)

SUBMITTED: 19Jan63 ENCL: 00 SUB CODE: CC, GC

NO REF SOV: 004 OTHER: 001 JPRS

Card 2/2

L 52799-65 EWT(m)/EPF(c)/EWP(j)/T/EWA(c) Pc-4/Pr-4 RM

ACCESSION NR: AP5016186 UR/0079/64/034/012/3942/3946

AUTHOR: Pudovik, A. N.; Gareyev, R. D.

TITLE: Reactions of carbethoxycarbene and diazomethane with unsaturated organophosphorus compounds and dialkylphosphorous acids

SOURCE: Zhurnal obshchey khimii, v. 34, no. 12, 1964, 3942-3946

TOPIC TAGS: ester, phosphinic acid, phosphoric acid, organic azo compound, organic phosphorus compound

Abstract: Ethyl esters of vinylphosphinic and allylphosphinic acids and the diethylallyl ester of phosphoric acid were used in a study of the reaction of carbenes and aliphatic diazocompounds with unsaturated organophosphorus compounds, in the light of the synthesis of phosphorus-containing compounds of the cyclopropane and pyrazoline series. Carbethoxycarbene was found to react with esters of allylphosphinic acid and the diethylallyl ester of phosphoric acid, forming cyclopropane derivatives in low yields (10-16%). The reaction of diazomethane with vinyl- and allylphosphinic esters produced the corresponding phosphorus-containing pyrazoline derivatives. The reactions of diazoacetic ester with dialkyl-

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L 52799-65

ACCESSION NR: AP5016186

phosphorous acids (dimethyl-, diethyl-, and di-n-propylphosphorous acids) in the presence of copper sulfate led to the formation of the corresponding esters of phosphoneacetic acid in 37-44% yield, along with small amounts (5-6%) of dialkyl-N-carbethoxymethylene hydrazidophosphates. The structures of the reaction products were confirmed by studies of their infrared spectra. Orig. art. has 11 formulas and 1 table.

ASSOCIATION: Kazanskiy gosudarstvennyy universitet (Kazan State University)

SUBMITTED: 08Jul63 ENCL: 00 SUB CODE: OC, GC

NO REF SOV: 005 OTHER: 001 JPRS

Card 2/2

L 52791-65 EWT(m)/EPF(c)/EWP(j) Pc-4/Pr-4 RM

ACCESSION NR: AP5016187 UR/0079/64/034/012/3946/3949

AUTHOR: Pudovik, A. N.; Tarasova, R. I. 1 2 B

TITLE: Reactions of carboxylic acid chlorides with salts of diethylthiophosphorous and phosphinous acids

SOURCE: Zhurnal obshchey khimii, v. 34, no. 12, 1964, 3946-3949

TOPIC TAGS: organic phosphorus compound, ester, phosphinic acid, phosphoric acid, carboxylic acid, chloride

Abstract: The reaction of acetyl chloride with sodium diethylthiophosphite results in the production of the diethyl ester of acetothiophosphinic acid and diethyl-alpha-(diethylthiophosphone)ethylthiophosphate. The reactions with propionyl chloride proceed analogously. When sodium diethylthiophosphite is added to excess acetyl chloride, in addition to the diethyl ester of acetothiophosphinic acid, a certain amount of methyldi-(diethylthiophosphane)carbinol acetate is formed. The latter compound was also synthesized by the reaction of acetyl chloride with methyldi-(diethylthiophosphone)carbinol produced in the reaction of acetothiophosphinic ester with diethylthiophosphinic acid in the presence of triehtylamine.

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L 52791-65

ACCESSION NR: AP5016187

The reaction of acetyl chloride with the sodium salt of the ethyl ester of ethylphosphinous acid leads to the formation of the ethyl-alpha-(ethylethoxyphosphone)ethyl ester of ethylphosphinic acid. An analogous reaction of propionyl chloride with the sodium salt of the ethyl ester of ethylphosphinous acid results in the formation of the ethyl ester of ethylpropionylphosphinic acid and the ethyl-alpha-(ethylethoxyphosphone)propyl ester of ethylphosphinic acid. The structures of the reaction products were confirmed by studies of their infrared spectra. Orig. art. has 4 formulas and 1 graph.

ASSOCIATION: none

SUBMITTED: 120ct63 ENCL: 00 SUB CODE: OC, GC

NO REF SOV: 001 OTHER: 000 JPRS

Card 2/2

L 12974-65 EWT(m)/EPF(c)/EPR/EWP(j)/EWP(b) Pc-4/Pr-4/Pa-4 RPL
RDW/RM/WW/JD

ACCESSION NR: AP4045101 S/0020/64/158/001/0167/0169

AUTHOR: Pudovik, A. N.; Kashevarova, E. I.; Arbuzov, B. A. (Academician) B

TITLE: Selenium-containing derivatives of acrylic and methacrylic acids

SOURCE: AN SSSR. Doklady*, v. 158, no. 1, 1964, 167-169

TOPIC TAGS: benzeneselenol, methacryloyl chloride, selenium containing polymer, organoselenium compound, diphenyl phosphochloridoselenoate, potassium acrylate, potassium methacrylate, phosphorus containing polymer, organophosphorus compound

ABSTRACT: A study has been made of the reaction of benzeneselenol with methacryloyl chloride. This work was done because there are no data in the literature on selenium-containing derivatives of acrylic and methacrylic acids. The reaction was conducted in an ethyl ether solution in the presence of triethylamine with the reactants taken in a 1/1 molar ratio. Two reaction products were obtained:

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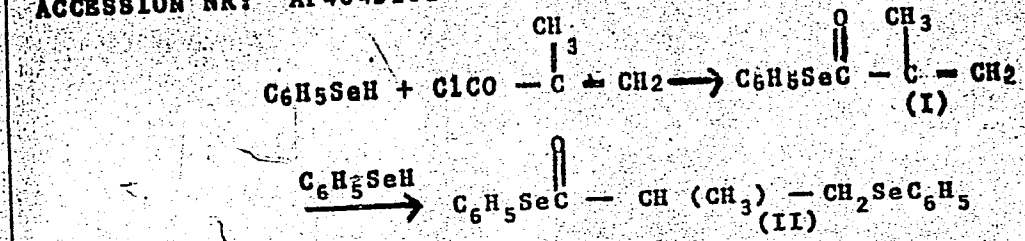
L 12971-65

ACCESSION NR: AP4045101



$$C_6H_5SeH + ClCO - \overset{CH_3}{\underset{|}{C}} = CH_2 \longrightarrow C_6H_5SeC - \overset{CH_3}{\underset{|}{C}} = CH_2 \quad (I)$$

$$\xrightarrow{C_6H_5SeH} C_6H_5SeC - CH(CH_3) - CH_2SeC_6H_5 \quad (II)$$

Compounds I and II were identified by chemical analysis, infrared spectroscopy, and molar refraction. Compound I is a low-viscosity yellow liquid. Compound II, whose yield is one third that of I, is a viscous liquid. Both I and II are soluble in acetone, ethyl ether, and ethyl alcohol. To prove the presumed course of the reaction, II was also prepared from I and benzeneselenol. Preliminary polymerization experiments showed that I polymerizes in the presence of benzoyl peroxide at 80C to a rubber-like product and in the presence of azobisisobutyronitrile at 80C to a solid brittle polymer with mp of 120—125C and at 100C to a polymer with mp of 60—64C. Also,

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L 12974-65

ACCESSION NR: AP4045101

studied was the reaction of O,O-diphenyl phosphorochloridoselenoate with potassium acrylate or methacrylate to form the mixed anhydrides (mp, 58-59 and 74-75C) in ~ 50% yields:

$$(C_6H_5O)_2\overset{\overset{Se}{\|}}{P}Cl + KOOC - CR = CH_2 \longrightarrow (C_6H_5O)_2\overset{\overset{Se}{\|}}{P}OCO - CR = CH_2,$$

where R = H, CH_3. These anhydrides are soluble in most organic solvents and polymerize in the presence of azobisisobutyronitrile. Orig. art. has: 2 formulas.

ASSOCIATION: Kazanskiy gosudarstvenny*y universitet im. V.I. Ul'yanova-Lenina (Kazan State University)

SUBMITTED: 29Feb64 ATD PRESS: 3109 ENCL: 00

SUB CODE: IC, OC NO REF SOV: 001 OTHER: 004

Card 3/3

L 34532-65 EPF(c)/EWP(j)/EWT(m)/T Pc-4/Pr-4 RM

ACCESSION NR: AP5003149 S/0020/64/158/002/0419/0422

21
19
B

AUTHOR: Pudovik, A. N.; Muratova, A. A.

TITLE: Mechanism of the reaction of esters of acids of trivalent phosphorus with alkyl silicon and alkyl tin halides

SOURCE: AN SSSR. Doklady, v. 158, no. 2, 1964, 419-422

TOPIC TAGS: ester, phosphorus, phosphinic acid, organic phosphorus compound, silicon, tin, halogenated organic compound, chemical bonding

Abstract: The reaction of esters of acids containing trivalent phosphorus with alkyl halides and their derivatives take place according to the Arbuzov rearrangement to form esters of alkylphosphinic acids, containing a phosphoruscarbon bond. The reaction of phosphorous and phosphinous esters with alkyl silicon and alkyl tin halides, on the other hand, leads to the formation of esters of phosphinic acids containing a P-O-Het bond, where Het represents Si o Sn. Proposed mechanisms of this reaction are discussed:
1) Esters with trivalent phosphorus are first isomerized to esters of phosphinic acids, which then react with the halogen-containing compounds.
2) In the first step, the reaction proceeds according to the Arbuzov scheme, but then, as a result of an intramolecular rearrangement of the reaction

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L 34532-65

ACCESSION NR: AP5003149

product, possessing a P-Het bond, compounds with P-O-Het bonds are formed. The reactions of the ethyl ester of diethylphosphinous acid with trimethyl-, triethyl-, tri-n-propyl-, tri-n-butylchlorosilanes and dimethyldichlorosilane were investigated. Crystalline intermediates were isolated at 0° to room temperature, the infrared spectra of which contained absorption bands characteristic of the P-O-C bond, with no absorption in the region of the phosphoryl group. However, when the precipitates were heated to 120°, instead of the expected compounds with a P-Si bond, the initial trialkylchlorosilanes and triethylphosphine oxide were isolated. No liberation of ethyl chloride was observed. It was thus found that the reaction proceeds neither according to the first nor according to the second of the proposed mechanisms, and the crystalline products formed are not phosphonium or pentacovalent compounds. The authors propose that they represent complexes formed by donor-acceptor interaction of the unshared pair of electrons of the phosphorus or oxygen atom with the unfilled 3d-orbitals of the silicon atom. In the reaction of the ethyl ester of diethylphosphinous aicd with trialkyl tin halides, no intermediate products could be isolated in crystalline form. The authors assume that the intermediate complexes formed are liquid products under the experimental conditions. Reaction products with the composition $(C_2H_5)_3P{=}O{\cdot}S(Hal)R_3$ were isolated; these same complex compounds were formed in the direct reaction

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L 34532-65

ACCESSION NR: AP5003149

of triethylphosphine oxide with triethyl tin oxide. Cautious heating of triethyl phosphide with diethyl tin diiodide produced a crystalline product, which, upon further heating to 140-150° C underwent further transformation, liberating ethyl iodide. Further heating of triethyl phosphide with triethyl tin iodide at 75° produced a gradual increase in the viscosity and index of refraction of the reaction mixture, indicating the formation of an intermediate complex. The esters of phosphorous and phosphinous acids contained in the intermediate complexes, undergoing intramolecular rearrangement in the complex, formed esters of phosphinic acids, which evidently reacted further with the tin (or silicon) halides according to a cyclic e ectron transfer mechanism, resulting in the formation of esters of phosphinic acids with P-O-Het bonds. Orig. art. has 9 formulas and 1 graph.

ASSOCIATION: Kazanskiy gosudarstvennyy universitet im. V. I. Ul'yanova-Lenina (Kazan' State University)

SUBMITTED: 29Feb64 ENCL: 00 SUB CODE: OC, GC

NO REF SOV: 007 OTHER: 004 JPRS

Card 3/3

PUDOVIK, A.N.; KONOVALOVA, I.V.; BANDEROVA, L.V.

Reaction of phosphorus ester acids with ethyl mesoxalate.
Zhur. ob. khim. 35 no.7:1206-1209 Jl '65. (MIRA 18:8)

1. Kazanskiy gosudarstvennyy universitet.

[illegible], I.L., ARBUZOV, G.P.

Addition of diphosphorous acid anilide to Schiff bases. Zhur. obs. khim. 35 no.8:1502-1503 Ag '65. (MIRA 18:8)

1. Kazanskiy gosudarstvennyy universitet.

ACC NR: AP6028903 SOURCE CODE: UR/0079/66/036/008/1467/1472

AUTHOR: Pudovik, A. N.; Pudovik, M. A.

ORG: Institute of Organic Chemistry, Kazan' (Institut organicheskoy khimii)

TITLE: Atomic refraction of phosphorus in esters of alkylarylphosphinic acids, in arylphosphinic acids, and reactions of addition to unsaturated compounds

SOURCE: Zhurnal obshchey khimii, v. 36, no. 8, 1966, 1467-1472

TOPIC TAGS: organic phosphorus compound, light refraction, phosphinic acid

ABSTRACT: A series of esters of phenyl- and p-tolylphosphinic acids have been synthesized. It was found that the atomic refraction of the pentavalent phosphorus atom in esters of phenylphosphinic acid is equal to 5.60, in esters of p-tolylphosphinic acid to 6.10, and in esters alkylphenylphosphinic acids to 5.34. Replacement of the alkoxyl group in dialkylphosphorous acids and esters of alkylphosphinic acids by the phenyl group causes the atomic refraction of pentavalent phosphorus to increase by 1.08. The addition of monoesters of p-tolylphosphinic acid to acrylates, methacrylates, and acrylonitrile, and the addition of monoesters of p-tolylphosphinic acid and dialkylphosphorous acids to Schiff bases having two carbon-nitrogen bonds in the molecule were carried out. Orig. art. has: 5 tables.

SUB CODE: 07/ SUBM DATE: 12Jul65/ ORIG REF: 004/ OTH REF: 001

UDC: 547.26'118

Card 1/1

ACC NR: AP6025987 SOURCE CODE: UR/0079/66/036/007/1232/1236

AUTHOR: Pudovik, A. N.; Yastrebova, G. Ye.; Nikitina, V. I.

ORG: Kazan State Unviersity (Kazanskiy gosudarstvennyy universitet)

TITLE: Esters of α-cyanovinylphosphonic acid

SOURCE: Zhurnal obshchey khimii, v. 36, no. 7, 1966, 1232-1236

TOPIC TAGS: alkyl cyanovinylphosphonate, diethyl cyanovinylphosphonate, dibutyl cyanovinylphosphonate, ester, mercaptan, organic phosphorus compound

ABSTRACT:

Diethyl α-cyanovinylphosphonate (I) and di-n-butyl α-cyanovinylphosphonate (II) were obtained by the condensation of formaldehyde with diethyl and di-n-butyl phosphonoacetonitriles in the presence of piperidine in methanol:

$$(RO)_2P(O)CH_2CN + CH_2O \rightarrow CH_2{=}\underset{\displaystyle CN}{\underset{|}{C}}{-}P(O)(OR)_2 + H_2O$$

Card 1/3 UDC: 547.313.2 : 546.185

ACC NR: AP6025987

Table 1.

Compound No.	Compound	Yield (in %)	bp (p in mm)	d_4^{20}	n_D^{20}	MR_D Found	MR_D Calculated	Found %P	Formula	Calculated %P
I	$CH_2=C(CN)P(O)(OC_2H_5)_2$	21	82—83° (1)	1.1040	1.4420	45.31	44.74	16.85	$C_7H_{12}NO_3P$	16.60
II	$CH_2=C(CN)P(O)(OC_6H_5\text{-}N)_2$	25	96—98 (0.05), 108—109 (1)	1.0178	1.4450	63.72	63.22	13.20	$C_{11}H_{10}NO_3P$	13.65
III	$(C_2H_5O)_2P(O)CH(CN)CH_2P(O)(OC_2H_5)_2$	79.2	173—174 (2)	1.1706	1.4508	75.08	74.55	16.11	$C_{11}H_{23}NO_5P_2$	16.96
IV	$(C_2H_5O)_2P(O)CH(CN)CH_2P(O)(OC_6H_7\text{-}N)_2$	50.5	175—176 (0.07)	1.1328	1.4503	84.05	83.78	17.86	$C_{15}H_{17}NO_5P_2$	17.46
V	$(C_2H_5O)_2P(O)CH(CN)CH_2SCOCH_3$	54	133—135 (0.04)	1.1811	1.4725	62.84	62.33	11.82	$C_9H_{16}NO_4PS$	11.60
VI	$(C_2H_5O)_2P(O)CH(CN)CH_2SC_2H_5$	49.5	118—119 (0.04)	1.1256	1.4732	62.58	62.52	12.57	$C_9H_{18}NO_3PS$	13.25
VII	$(N\text{-}C_6H_5O)_2P(O)CH(CN)CH_2P(O)(OC_2H_5)_2$	75	165—168 (0.06)	1.1060	1.4500	93.07	93.03	16.02	$C_{20}H_{23}NO_5P_2$	16.18
VIII	$(N\text{-}C_6H_5O)_2P(O)CH_2CN$	54	155—156 (3)	1.0350	1.4392	59.24	59.04	13.18	$C_{20}H_{20}NO_3P$	13.30
IX	$(C_2H_5O)_2P(O)CH(CN)CH_2P(O)$ 	81.9	168—170 (0.08)	1.1580	1.4620	78.96	78.91	19.04	$C_{11}H_{23}NO_5P_2$	19.03

Card 2/3

ACC NR: AP6025987

The addition of dialkylphosphorous acids, ethyl ethylphosphinates, ~~thionates~~, and ethyl mercaptan to I and II gave the corresponding esters shown in the table. Orig. art. has: 1 table. [W.A. 50; CBE No. 10]

SUB CODE: 07/ SUBM DATE: 10May65/ ORIG REF: 004/ OTH REF:00

Card 3/3

ACC NR: AP6025995 SOURCE CODE: UR/0079/66/036/007/1345/1345

AUTHOR: Pudovik, A. N.; Khusainova, N. G.

ORG: Kazan State University (Kazanskiy gosudarstvennyy universitet)

TITLE: Addition of O,O-diethyl dithiophosphonate to esters of unsaturated phosphonic acids

SOURCE: Zhurnal obshchey khimii, v. 36, no. 7, 1966, 1345

TOPIC TAGS: alkyl dithiophosphonate, unsaturated alkylphosphonic acid, ester, phosphonic acid

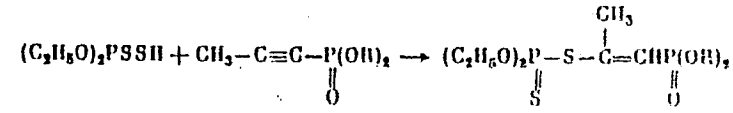
ABSTRACT:
O,O-Diethyl dithiophosphonate (I) adds to O,O-diethylvinylphosphonate (II) to form adduct III, bp 164—165°C, n_D^{20} 1.1776:

$$\left.\begin{array}{l}(C_2H_5O)_2PSSH + CH_2{=}CHP(OC_2H_5)_2 \\ \quad\quad I \quad\quad\quad\quad O \quad II \\ (C_2H_5O)_2PSSK + BrCH_2CH_2P(OC_2H_5)_2 \\ \quad\quad\quad\quad\quad\quad\quad\quad O\end{array}\right\rightarrow (C_2H_5O)_2\overset{S}{\underset{H}{P}}-SCH_2CH_2\overset{O}{\underset{H}{P}}(OC_2H_5)_2$$
III

Card 1/2 UDC: 547.26'118

ACC NR: AP6025995

The addition apparently proceeds by an ionic mechanism and is contrary to Markownikoff's rule. The addition of I to dialkyl esters of 1-propynylphosphonic acid (where R is n-butyl or ethyl):



yielded O,O-diethyl S-1-methyl-2-diethylphosphonoethenyl dithiophosphate, bp 171—172°C (2 mm), n_D^{20} 1.5074 and O,O-diethyl S-1-methyl-2-dibutylphosphonoethenyl dithiophosphate, bp 168—169°C (5 x 10^{-2} mm), n_D^{20} 1.4995. Orig. art. has: 2 formulas. [W.A. 50; CBE No. 10]

SUB CODE: 07/ SUBM DATE: 16Dec65/

Card 2/2

ACC NR: AP6028903 SOURCE CODE: UR/0079/66/036/008/1467/1472

AUTHOR: Pudovik, A. N.; Pudovik, M. A.

ORG: Institute of Organic Chemistry, Kazan' (Institut organicheskoy khimii)

TITLE: Atomic refraction of phosphorus in esters of alkylarylphosphinic acids, in arylphosphinic acids, and reactions of addition to unsaturated compounds

SOURCE: Zhurnal obshchey khimii, v. 36, no. 8, 1966, 1467-1472

TOPIC TAGS: organic phosphorus compound, light refraction, phosphinic acid

ABSTRACT: A series of esters of phenyl- and p-tolylphosphinic acids have been synthesized. It was found that the atomic refraction of the pentavalent phosphorus atom in esters of phenylphosphinic acid is equal to 5.60, in esters of p-tolylphosphinic acid to 6.10, and in esters alkylphenylphosphinic acids to 5.34. Replacement of the alkoxyl group in dialkylphosphorous acids and esters of alkylphosphinic acids by the phenyl group causes the atomic refraction of pentavalent phosphorus to increase by 1.08. The addition of monoesters of p-tolylphosphinic acid to acrylates, methacrylates, and acrylonitrile, and the addition of monoesters of p-tolylphosphinic acid and dialkylphosphorous acids to Schiff bases having two carbon-nitrogen bonds in the molecule were carried out. Orig. art. has: 5 tables.

SUB CODE: 07/ SUBM DATE: 12Jul65/ ORIG REF: 004/ OTH REF: 001

UDC: 547.21'118

ACC NR: AP6025988 SOURCE CODE: UR/0079/66/036/007/1236/1240

AUTHOR: Pudovik, A. N.; Khusainova, N. G.

ORG: Kazan State University (Kazanskiy gosudarstvennyy universitet)

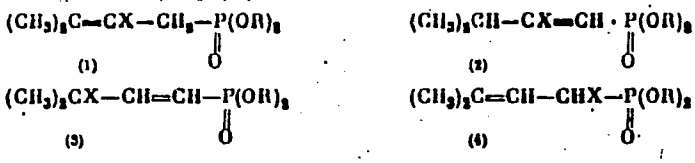
TITLE: Addition of alcohols, amines, and dialkyl phosphites to esters of γ, γ-dimethylallenylphosphonic acid

SOURCE: Zhurnal obshchey khimii, v. 36, no. 7, 1966, 1236-1240

TOPIC TAGS: dimethylallylphosphonic acid ester, alkylamino dimethylallylphosphonate, alcohol, amine, phosphonic acid, ester

ABSTRACT:

Alcohols, amines, and dialkyl phosphites add to alkyl γ, γ-dimethylallenylphosphonic acid (I) to form the following four types of compounds:



(1) (2) (3) (4)

 UDC: 547.315.1 : 546.185

(R and X are given in the table):

Table 1. Adducts of alcohols, amines, and dialkyl phosphites to esters of γ,γ-dimethylallenylphosphonic acid

$$(RO)_2P(O)-CH_2-CX=C(CH_3)_2$$

Compound no.	R	X	Yield (in %)	bp (p in mm)	d_4^{20}	n_D^{20}	MR_D Found	MR_D Calculated	Found % P	Formula	Calculated % P
I	C_2H_5	OC_2H_5; N	79	145° (9)	0.9970	1.4444	70.04	69.66	11.77	$C_{12}H_{22}O_4P$	11.74
II	N-C_3H_7	OCH_3	76	120—122 (1.5)	1.0140	1.4491	69.85	69.66	11.83	$C_{12}H_{23}O_4P$	11.74
III	N-C_3H_7	OC_2H_5	68	135—138 (5)	0.9962	1.4413	74.16	74.28	11.73	$C_{13}H_{25}O_4P$	11.15
IV	N-C_4H_9	OCH_3	72.5	132—135 (1)	0.9894	1.4516	79.58	78.89	10.80	$C_{14}H_{27}O_4P$	10.60
V	N-C_4H_9	OC_2H_5	67	129—130 (0.8)	0.9755	1.4500	84.29	83.51	9.90	$C_{15}H_{29}O_4P$	10.10
VI	C_2H_5	$P(O)(OCH_3)_2$	82	147 (1)	1.1727	1.4674	74.33	74.27	19.63	$C_{11}H_{22}O_6P_2$	19.74
VII	C_2H_5	$P(O)(OC_3H_7\text{-}N)_2$	65	156 (1.5)	1.0889	1.4595	92.95	92.74	16.83	$C_{17}H_{32}O_6P_2$	16.75
VIII	C_2H_5	$P(O)(OC_4H_9\text{-}N)_2$	73	157 (0.8)	1.0678	1.4590	101.9	101.97	15.10	$C_{19}H_{36}O_6P_2$	15.57
IX	N-C_3H_7	$P(O)(OCH_3)_2$	74	154—155 (1.5)	1.1150	1.4580	83.66	83.5	18.16	$C_{13}H_{28}O_6P_2$	18.12
X	N-C_3H_7	$P(O)(OC_2H_5)_2$	63	157—158 (1.5)	1.0929	1.4589	92.55	92.74	16.83	$C_{15}H_{32}O_6P_2$	16.75
XI	N-C_3H_7	$P(O)(OC_3H_7\text{-}N)_2$	67	165 (1.5)	1.0851	1.4580	102	101.97	15.30	$C_{17}H_{36}O_6P_2$	15.6
XII	N-C_3H_7	$P(O)(OC_4H_9\text{-}N)_2$	61.5	203 (4)	1.0668	1.4583	111.1	111.22	14.32	$C_{19}H_{40}O_6P_2$	14.55
XIII	N-C_4H_9	$P(O)(OCH_3)_2$	79	163—165 (1)	1.1049	1.4648	92.74	92.74	16.75	$C_{15}H_{32}O_6P_2$	16.90
XIV	N-C_4H_9	$P(O)(OC_2H_5)_2$	81	167 (0.8)	1.0864	1.4601	102.3	101.97	16.10	$C_{17}H_{36}O_6P_2$	15.57
XV	N-C_4H_9	$P(O)(OC_3H_7\text{-}N)_2$	76	172—174 (0.8)	1.0440	1.4580	111.4	111.21	14.80	$C_{19}H_{40}O_6P_2$	14.55
XVI	C_2H_5	$N(C_2H_5)_2$	74.1	118—120 (2)	0.9951	1.4654	76.87	76.57	11.49	$C_{12}H_{26}NO_3P$	11.19
XVII	N-C_3H_7	$N(C_3H_7)_2$	58	140—143 (3.5)	0.9785	1.4820	85.70	85.81	10.80	$C_{15}H_{32}NO_3P$	10.16
XVIII	C_2H_5	$N(CH_3)_2$	68.8	128—130 (1)	1.0446	1.4805	78.63	78.99	10.90	$C_{14}H_{30}NO_3P$	10.70
XIX	N-C_3H_7	$N(CH_3)_2$	62	156 (2.5)	1.0143	1.4781	88.49	88.23	9.48	$C_{16}H_{34}NO_3P$	9.78
XX	N-C_4H_9	$N(C_2H_5)_2$	83	135—137 (1)	0.9845	1.4827	95.05	95.04	9.70	$C_{17}H_{36}NO_3P$	9.80

ACC NR: AP6025988

The addition of alcohols and phosphite esters to I takes place in the presence of sodium alkoxides at 70—100°C. Amines (diethylamine and piperidine) add to I on a water bath without a catalyst. Physical constants of the adducts are shown in the table. Orig. art. has: 1 table. [W.A. 50; CBE No. 10]

SUB CODE: 07/ SUBM DATE: 12May65/ ORIG REF: 006/ OTH REF: 001/

Card 3/3

ACC NR: AP6031387 SOURCE CODE: UR/0079/66/036/009/1658/1662

AUTHOR: Pudovik, A. N.; Pudovik, M. A.

ORG: Institute of Organic Chemistry, Academy of Sciences, SSSR, Kazan' (Institut organicheskoy khimii Akademii nauk SSSR)

TITLE: Transesterification of monoethyl esters of ethyl- and phenylphosphonous acids with glycols

SOURCE: Zhurnal obshchoy khimii, v. 36, no. 9, 1966, 1658-1662

TOPIC TAGS: esterification, phosphonous acid, glycol

ABSTRACT: In order to determine the effect of the nature of glycols on the course of transesterification reactions, the kinetics of reactions of monoethyl esters of ethyl- and phenylphosphonous acids with 1,2-propylene glycol, 1,3-propylene glycol, 1,3-, 1,4- and 2,3-butylene glycols, dipropylene glycol, tri-, tetra- and hexaethylene glycols, β-thioglycol, 2-butyne-1,4-diol and hydroquinone were studied. The reactions were carried out for 3 hr at 170°C. The reaction rates decrease in the series ethylene glycol > dipropylene glycol > triethylene glycol > tetraethylene glycol > hexaethylene glycol and increase in the series ethylene glycol < 1,2-propylene glycol < 2,3-butylene glycol < 1,3-butylene glycol. A series of acid diphosphonites were thus obtained. They are relatively viscous liquids soluble in alcohol, water, dioxane, tetrahydrofuran and chloroform, and insoluble in benzene, ether, toluene and petroleum

Card 1/2 UDC: 547.26'118+547.422

other. Diphosphonites obtained from glycols with a long chain of carbon atoms are stable in storage, whereas products obtained from glycols such as ethylene glycol, 1,2-propylene glycol and 2,3-butylene glycol change their constants during storage. Table 1 shows the physical constants of the diphosphinites obtained. Orig. art. has: 5 figures and 1 table.

Table 1.

Diphosphonite of	Yield, %	B. P. (p in mm)	d_4^{20}	n_D^{20}	MR_D measured	MR_D calculated
Diethyl 1,2-propylene glycol	42	116—119° (0.04)	1.1580	1.4612	54.08	54.48
Diethyl 1,3-propylene glycol	50.7	128—130 (0.04)	1.1630	1.4663	54.37	54.48
Diethyl 1,3-butylene glycol	49	143—144 (0.08)	1.1335	1.4640	59.98	59.10
Diethyl 2,3-butylene glycol	40.2	128—129 (0.04)	1.1360	1.4626	58.70	59.10
Diethyl pentamethylene glycol	41.1	161—163 (0.08)	1.1162	1.4672	63.72	63.72
Diethyl diethylene glycol	51.4	160—162 (0.06)	1.1815	1.4696	60.94	60.74
Diethyl propylene glycol	35.8	144—147 (0.04)	1.1219	1.4613	70.03	69.97
Diethyl tetraethylene glycol	46.2	152—155 (0.03)	1.1618	1.4661	82.60	82.49

SUB CODE: 07/ SUBM DATE: 12Jul65/ ORIG REF: 004

L 31799-66 EWT(m)/EWP(j) WW/RM

ACC NR: AP6021690 SOURCE CODE: UR/0079/66/036/003/0565/0565

61
B

AUTHOR: Pudovik, A. N.; Pudovik, M. A.

ORG: Institute of Organic and Physical Chemistry, AN SSSR, Kazan' (Institut organicheskoy i fizicheskoy khimii AN SSSR)

TITLE: Addition of acid cyclic diethylene glycol diphosphite at multiple bonds

SOURCE: Zhurnal obshchey khimii, v. 36, no. 3, 1966, 565

TOPIC TAGS: reaction mechanism, chemical bonding, organic phosphorus compound, heterocyclic base compound, chemical reaction

ABSTRACT: Acid cyclic diethylene glycol diphosphite is capable of undergoing reactions of nucleophilic addition to unsaturated electrophilic compounds containing C=C, C=O, and C=N bonds. Phenyl and naphthyl isocyanates, acrylonitrile, p-dimethylaminobenzaldehyde, p-bromobenzaldehyde, and benzalaniline were used as the unsaturated compounds. The reaction was carried out at 100° with an excess of the unsaturated compound in the presence of alkali metal alcoholates. It can be carried out in the absence of a solvent or in anhydrous alcohol solution. Orig. art. has: 1 table. [JPRS]

SUB CODE: 07 / SUBM DATE: 010ct65 / ORIG REF: 001 / OTH REF: 001

Card 1/1 UDC: 547.26'118

L 25978-66 EWT(m)/T/EWP(j)/ETC(m)-6 IJP(c) WW/RM

ACC NR: AP6015614 (A) SOURCE CODE: UR/0020/66/168/002/0354/0356

39
38
B

AUTHOR: Pudovik, A. N.; Pudovik, M. A.

ORG: Institute of Organic and Physical Chemistry im. A. Ye. Arbuzov AS SSSR, Kazan (Institut organicheskoy i fizicheskoy khimii Akademii nauk SSSR)

TITLE: Migration polymerization of acid diphosphites, diphosphinites [sic] with p-tolylene diisocyanate and some other compounds with two double bonds

SOURCE: AN SSSR. Doklady, v. 168, no. 2, 1966, 354-356

TOPIC TAGS: phosphorus containing polymers, fire resistant material, migration polymerization, para tolylene diisocyanate, acid phosphite

ABSTRACT: Migration polymerization of acid diphosphites with p-tolylene diisocyanate (I) or with some other compounds was studied. Cyclodiethylene glycol diphosphite (II) or diethyl 1,3-propylene glycol diphosphite (III) [designated "diphosphinite" in the original] were used as phosphorus-containing components. The effects of temperature, polymerization time, ratio of components and the nature and amount of solvents used in some experiments as polymerization media on the yields and properties of the polymers obtained were studied. Most of the experiments were conducted with components in the equimolecular ratios, in the absence of solvent and in nitrogen atmosphere. In some cases, however, dimethylformamide, dioxane or ethyl acetate

2

Card 1/3 UDC: 546.183:547.315.3

L 25978-66

ACC NR: AP6015614

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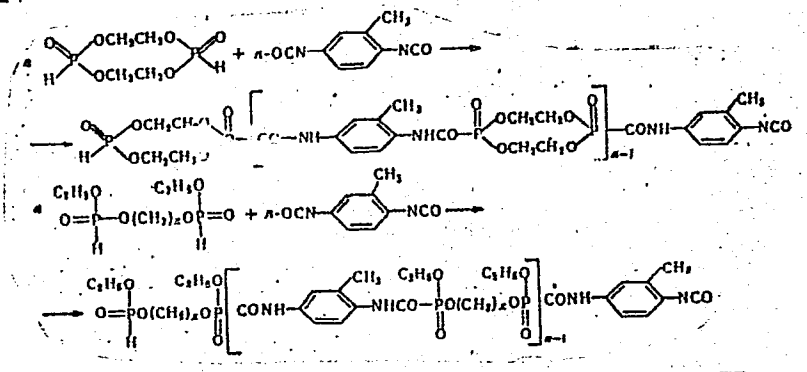

were used as media. In the first series of the experiments, I and II produced solid orange colored polymers. With an increase in polymerization time the yields and molecular weight of the polymers also increased until the maximum yield of 78.8% was attained. The softening temperatures also increased until they reached the 120 C range at the above-mentioned maximum yield. Maximum yields were obtained at the equimolar ratio of components. Polymerization in solvent decreased the yields and the molecular weight of the polymers. The effect is based on the solubility of polymers in the given solvent to a definite molecular weight. Polymers obtained from solvents are more uniform and less intensely colored than polymers obtained without solvent. Similar relationships were observed for the polymers obtained from I and

Card 2/3

L 25978-66
ACC NR: AP6015614

III. The polymers were yellow or orange powders, soluble only in dimethylformamide or dimethylsulfoxide. Their softening temperatures were above 100 C. Compound III was subjected to migration polymerization with some other compounds which contained two double bonds, such as ethylene glycol dimethacrylate, dibenzal acetone, some Schiff's bases or terephthalic aldehyde. The polymerization was conducted in the absence of solvent, at the equimolar ratios of the components and in the presence of sodium ethylate. Polymers were reprecipitated from dimethylformamide and dried to constant weight. They were either solid powders or viscous resins, soluble in dimethylformamide, dimethylsulfoxide or H_2SO_4. All of them had a low combustibility, and in some cases, were almost incombustible. Orig. art. has: 1 formula, 2 tables and 2 figures. [BN]

SUB CODE: 07, 11/ SUBM DATE: 30Sep65/ ORIG REF: 003/ OTH REF: 005/ ATD PRESS: 4256

Card 3/3 FW

ACC NR: AP6028903 SOURCE CODE: UR/0079/66/036/008/1467/1472

AUTHOR: Pudovik, A. N.; Pudovik, M. A.

ORG: Institute of Organic Chemistry, Kazan' (Institut organicheskoy khimii)

TITLE: Atomic refraction of phosphorus in esters of alkylarylphosphinic acids, in arylphosphinic acids, and reactions of addition to unsaturated compounds

SOURCE: Zhurnal obshchey khimii, v. 36, no. 8, 1966, 1467-1472

TOPIC TAGS: organic phosphorus compound, light refraction, phosphinic acid

ABSTRACT: A series of esters of phenyl- and p-tolylphosphinic acids have been synthesized. It was found that the atomic refraction of the pentavalent phosphorus atom in esters of phenylphosphinic acid is equal to 5.60, in esters of p-tolylphosphinic acid to 6.10, and in esters alkylphenylphosphinic acids to 5.34. Replacement of the alkoxyl group in dialkylphosphorous acids and esters of alkylphosphinic acids by the phenyl group causes the atomic refraction of pentavalent phosphorus to increase by 1.08. The addition of monoesters of p-tolylphosphinic acid to acrylates, methacrylates, and acrylonitrile, and the addition of monoesters of p-tolylphosphinic acid and dialkylphosphorous acids to Schiff bases having two carbon-nitrogen bonds in the molecule were carried out. Orig. art. has: 5 tables.

SUB CODE: 07/ SUBM DATE: 12Jul65/ ORIG REF: 004/ OTH REF: 001

UDC: 547.26'118

Card 1/1

ACC NR: AP6028903 SOURCE CODE: UR/0079/66/036/008/1467/1472

AUTHOR: Pudovik, A. N.; Pudovik, M. A.

ORG: Institute of Organic Chemistry, Kazan' (Institut organicheskoy khimii)

TITLE: Atomic refraction of phosphorus in esters of alkylarylphosphinic acids, in arylphosphinic acids, and reactions of addition to unsaturated compounds

SOURCE: Zhurnal obshchey khimii, v. 36, no. 8, 1966, 1467-1472

TOPIC TAGS: organic phosphorus compound, light refraction, phosphinic acid

ABSTRACT: A series of esters of phenyl- and p-tolylphosphinic acids have been synthesized. It was found that the atomic refraction of the pentavalent phosphorus atom in esters of phenylphosphinic acid is equal to 5.60, in esters of p-tolylphosphinic acid to 6.10, and in esters alkylphenylphosphinic acids to 5.34. Replacement of the alkoxyl group in dialkylphosphorous acids and esters of alkylphosphinic acids by the phenyl group causes the atomic refraction of pentavalent phosphorus to increase by 1.08. The addition of monoesters of p-tolylphosphinic acid to acrylates, methacrylates, and acrylonitrile, and the addition of monoesters of p-tolylphosphinic acid and dialkylphosphorous acids to Schiff bases having two carbon-nitrogen bonds in the molecule were carried out. Orig. art. has: 5 tables.

SUB CODE: 07/ SUBM DATE: 12Jul65/ ORIG REF: 004/ OTH REF: 001

UDC: 547.21'118

Card 1/1

ACC NR: AP6031387 SOURCE CODE: UR/0079/66/036/009/1658/1662

AUTHOR: Pudovik, A. N.; Pudovik, M. A.

ORG: Institute of Organic Chemistry, Academy of Sciences, SSSR, Kazan' (Institut organicheskoy khimii Akademii nauk SSSR)

TITLE: Transesterification of monoethyl esters of ethyl- and phenylphosphonous acids with glycols

SOURCE: Zhurnal obshchoy khimii, v. 36, no. 9, 1966, 1658-1662

TOPIC TAGS: esterification, phosphonous acid, glycol

ABSTRACT: In order to determine the effect of the nature of glycols on the course of transesterification reactions, the kinetics of reactions of monoethyl esters of ethyl- and phenylphosphonous acids with 1,2-propylene glycol, 1,3-propylene glycol, 1,3-, 1,4- and 2,3-butylene glycols, dipropylene glycol, tri-, tetra- and hexaethylene glycols, 9-thioglycol, 2-butyne-1,4-diol and hydroquinone were studied. The reactions were carried out for 3 hr at 170°C. The reaction rates decrease in the series ethylene glycol > dipropylene glycol > triethylene glycol > tetraethylene glycol > hexaethylene glycol and increase in the series ethylene glycol < 1,2-propylene glycol < 2,3-butylene glycol < 1,3-butylene glycol. A series of acid diphosphonites were thus obtained. They are relatively viscous liquids soluble in alcohol, water, dioxane, tetrahydrofuran and chloroform, and insoluble in benzene, ether, toluene and petroleum

UDC: 547.26'118+547.422

ACC NR: AP6031387

ether. Diphosphonites obtained from glycols with a long chain of carbon atoms are stable in storage, whereas products obtained from glycols such as ethylene glycol, 1,2-propylene glycol and 2,3-butylene glycol change their constants during storage. Table 1 shows the physical constants of the diphosphinites obtained. Orig. art. has: 5 figures and 1 table.

Table 1.

Diphosphonite of	Yield, %	B. P. (p in mm)	d_4^{20}	n_D^{20}	MR, measured	MR, calculated
Diethyl 1,2-propylene glycol	42	116—119° (0.04)	1.1580	1.4612	54.08	54.48
Diethyl 1,3-propylene glycol	50.7	128—130 (0.04)	1.1630	1.4663	54.37	54.48
Diethyl 1,3-butylene glycol	49	143—144 (0.08)	1.1335	1.4640	59.98	59.10
Diethyl 2,3-butylene glycol	40.2	128—129 (0.04)	1.1360	1.4626	58.70	59.10
Diethyl pentamethylene glycol	41.1	161—163 (0.08)	1.1162	1.4672	63.72	63.72
Diethyl diethylene glycol	51.4	160—162 (0.06)	1.1815	1.4696	60.94	60.74
Diethyl propylene glycol	35.8	144—147 (0.04)	1.1219	1.4613	70.03	69.97
Diethyl tetraethylene glycol	46.2	152—155 (0.03)	1.1618	1.4661	82.60	82.49

SUB CODE: 07/ SUBM DATE: 12Jul65/ ORIG REF: 004

Card 2/2

ACC NR: AP7003663 SOURCE CODE: UR/0079/66/036/008/1467/1472

AUTHOR: Pudovik, A. N.; Pudovik, M. A.

ORG: Institute of Organic Chemistry, Kazan' (Institut organicheskoy khimii)

TITLE: Atomic refraction of phosphorus in esters of alkylarylphosphinic acids, arylphosphinous acids, and reactions of addition to unsaturated compounds

SOURCE: Zhurnal obshchoy khimii, v. 36, no. 8, 1966, 1467-1472

TOPIC TAGS: phosphinic acid, ester, acrylic acid, methacrylic acid

ABSTRACT: A series of eight acid esters of phenylphosphinous acid and eight acid esters of p-tolylphosphinous acid were synthesized. The atomic refraction of the pentavalent phosphorus atom in esters of phenylphosphinous acid was found to be 5.60, and in esters of p-tolylphosphinous acid 6.10. The atomic refraction of the pentavalent phosphorus atom in esters of alkylphenylphosphinic acids has a value of 5.34. Replacement of the alkoxyl group by a phenyl in dialkylphosphorous and esters of alkylphosphinic acids leads to an increase in the atomic refraction of pentavalent phosphorus to 1.08. The addition of acid esters of p-tolylphosphorous acid to unsaturated electrophilic compounds: esters of acrylic and methacrylic acids, acrylonitrile, and Schiff's bases, were studied. In the presence of sodium alcoholate, the reaction proceeded exothermically, with 52-80% yields of the addition products. Monoesters of tolylphosphinous acid and acid phosphites were also added to unsaturated electrophilic reagents containing two double bonds: dibensal-p-phenylenediamine and dianils produced from terephthalic aldehydes, aniline and p-chloroanaline. Orig. art. has: 5 tables. [JPRS: 38,970]

SUB CODE: 07 / SUBM DATE: 12Jul65 / ORIG REF: 004 / OTH REF: 001

Card 1/1 jb

UDC: 547.26'118

0926 0286

ACCESSION NR: AT4033992 S/0000/63/000/000/0091/0095

AUTHOR: Pudovik, A. N.; Cherkasov, R. A.; Pudovik, M. A.

TITLE: Polyalkyleneglycol dithiophosphates and the reactions of their addition to unsaturated compounds

SOURCE: Geterotsepny*ye vy*sokomolekulyarny*ye soyedineniya (Heterochain macromolecular compounds); sbornik statey. Moscow, Izd-vo "Nauka," 1963, 91-95

TOPIC TAGS: dithiophosphate, polyalkyleneglycol dithiophosphate, polyester, phosphorus containing polyester, polyester synthesis, unsaturated compound, electrophilic unsaturated compound, nucleophilic unsaturated compound, polyester addition reaction

ABSTRACT: Several polyalkyleneglycol dithiophosphates were synthesized by re-esterification of dithiophosphoric acid ethers with glycols (ethylene glycol, 1,2-propylene glycol, 1,4-butylene glycol, diethylene glycol, pyrocatechol and hydroquinone). Reactions lasted 1 to 6 hours at 50-130 mm pressure and 80-170C. The resultant polyesters (viscous or nearly solid transparent resins with 15.08 to 20.36% P) were used in additional reactions (30-60 min., 70-80C, 30% excess of the saturated compound, without a catalyst or with sodium ethylate, in dioxane solution for solid or highly viscous polyesters) to acrylonitrile, methacrylate, diethyl-

Card 1/2

ACCESSION NR: AT4033992

maleate, styrene, benzylaniline and p-nitrobenzylaniline. Orig. art.has: 3 tables and 4 chemical equations.

ASSOCIATION: Kazanskiy gosudarstvenny*y universitet im. V. I. Ul'yanova-Lenina (Kazan State University)

SUBMITTED: 09Jul62 DATE ACQ: 30Apr64 ENCL: 00

SUB CODE: OC NO REF SOV: 004 OTHER: 002

Card 2/2

PUDOVIK, A.N.; PUDOVIK, M.A.

New method of synthesizing phosphinic and thiophosphinic acid esters. Part 40: Addition of acid phosphites, diphosphites, phenylphosphine to unsaturated electrophilic reagents containing one or two double bonds. Zhur.ob.khim. 33 no.10: 3353-3358 O '63. (MIRA 16:11)

1. Kazanskiy gosudarstvennyy universitet.

PUTOVKIN, A.I.

Effect of a low-frequency electromagnetic field of subliminal intensity on the development of parabiosis. Nerv. sist. no.5: 47-50 '64. (MIRA 18:3)

1. Kafedra fiziologii cheloveka i zhivotnykh Leningradskogo gosudarstvennogo universiteta.

ZAGORSKIY, V.T.; PUDOVKIN, A.K.; MEDEL'SKIY, N.M.

Some problems in the automation of the control of [illegible] power units. Izv. SO AN SSSR no.6. Ser. tekh. [illegible] 35 '65. [illegible]

1. Institut avtomatiki i elektrometrii Sibirskogo otdeleniya AN SSSR, Novosibirsk.

SHTURMIN, V.G. (R [illegible]

Preparation of [illegible] for the [illegible] of agricultural products. [illegible] .3 [illegible]

(MIRA 18 9)

1. Nachal'nik sluzhby [illegible] dorogi (for Shturmin). 2. Nachal'nik proizvodstvennogo otdela depo Tikhoretskaya (for [illegible]).

PUDOVKIN, I.M.

Concerning the note by G.N. Konstantinov, L.S. Konstantinova, V.A. Filatova "Determining the zero point of the level of magnetic anomalies." Geol. i geofiz. no.7:109-111 '62. (MIRA 16:7)

(Magnetic anomalies) (Konstantinov, G.N.)
(Konstantinova, L.S.) (Filatova, V.A.)

L 29120-66
ACC NR: AP6018863 SOURCE CODE: UR/0288/65/000/002/0027/0035

56
B

AUTHOR: Zagorskiy, V. T.; Pudovkin, A. K.; Nedel'skiy, N. M.

ORG: Institute of Automation and Electrometry, Siberian Section, AN SSSR, Novosibirsk (Institut avtomatiki i elektrometrii Sibirskogo otdeleniya AN SSSR)

TITLE: Certain problems of automation of thermal power generator control

SOURCE: AN SSSR. Sibirskoye otdeleniye. Izvestiya. Seriya tekhnicheskikh nauk, no. 2, 1965, 27-35

TOPIC TAGS: power plant, gas turbine engine, automatic control design, automation equipment

ABSTRACT: With the increase in the power of individual power-producing units, the problem of control of thermal power generators became considerably more complex. The situation will become especially critical with the development of combined gas-turbine devices which are presently in the design stage (see V. A. Zysin, Kombinirovannyye parogazovyye ustanovki i tsikly (Combined Vapor-Gas Devices and Cycles), Gosenergoizdat, 1962). The usual approaches to automatic control design cannot be used here because the characteristics of the generating object and the relationship between its parameters during the start and stop of operation are quite unknown. Consequently, the automation of the control of such new objects must be established on the basis of generalized data concerning the existing thermal generator devices and

UDC: 621.4-546:621.4-544

Card 1/2

L 29120-66

ACC NR: AP6018863

0

those under construction, taking case, at the same time, of the possible deviations of the parameters of real equipment from their generalized values. Consequently, the authors give a detailed generalized analysis of the underlying premises and peculiarities of automation of the process of starting and stopping of the above-mentioned devices. A control system is proposed starting (and stopping) the operation of thermal power generator objects with a speed close to maximum. Orig. art. has: 3 figures and 1 table. [JPRS]

SUB CODE: 13 / SUBM DATE: 29Oct64 / ORIG REF: 008 / OTH REF: 001

Card 2/2 nc

SMOL'YANNIKOV, V. V.; PUDOVKIN, A. M.

"Granary pests" by P. K. Chernishov. Reviewed by V. V. Smol'iannikov, A. M. Pudovkin. Zashch. rast. ot vred. i bol. 5 no.5:53 My '60. (MIRA 16:1)

1. Direktor Stavropol'skoy karantinnoy laboratorii (for Smol'yannikov). 2. Starshiy agronom-entomolog Stavropol'skoy karantinnoy laboratorii (for Pudovkin).

(Grain—Diseases and pests)
(Chernishov, P. K.)

PUDOVKIN, A.M.; LESHCHINSKIY, N.S.

Revising the system of measures for controlling the San Jose scale. Zashch. rast. ot vred. i bol. 8 no.1:19-20 Ja '63. (MIRA 16:5)

1. Starshiy agronom-entomolog Stavropol'skoy karantinnoy inspektsii (for Pudovkin).

(San Jose scale--Extermination)

PUDOVIKOV, S. P.

"Treatment of Patients with Broken Bones by Professor N. N. Yelanskiy's Method," Voyenno-Med. Zhur., No. 11, p. 28, 1955.

PUDOVKIN, I. V.

Pudovkin, I. V. "Micromagnetic Survey of the Parandovsk-Piiiavaarsk Deposit of Molybdenum." In the book: Informatsionnyi Sbornik po Zemnomu Magnetizmu i Electrichestvu, Leningrad, 1936, pp. 21-25.

PUDOVKIN, I. M.

Pudovkin, I. M. "On the Question of Geologic Mapping by the Method of Micromagnetic Survey." Zemnoi Magnetism (Trudy Glavnoi Geofizicheskoi Observatorii, No. 29), Leningrad, No. 4, 1938, pp, 5.-61.

PUDOVKIN, I.M.

Three-dimensional calculations of vertical gradients of horizontal and vertical components of a magnetic field in the interpretation of anomalies. Prikl.geofiz. no.13:99-109 '55. (MLRA 8:10)
(Magnetism, Terrestial)

PUDOVKIN, I.M.

Some problems in the theory of calculations of △ T. Prikl.geofiz. no.13:110-115 '55. (MLRA 8:10)
(Magnetism, Terrestial)

PUDOVKIN, I.M.

Variations of the magnetic field in making precise regional surveys. Izv.AN SSSR.Ser.geofiz. no.8:997-998 Ag '56.
(MLRA 10:1)

(Magnetic fields)

PUDOVKIN, I.M.

A method for the approximate estimation of the occurrence of stratification patterns causing magnetic disturbance. Prikl. geofiz. no.16: 175-187 '57. (MLRA 10:8)

(Magnetism, Terrestrial)

POCHTAREV, Viktor Ivanovich, PUDOVKIN, I.M., otv.red.; VLASOVA, Yu.V., red.; SOLOVEYCHIK, A.A., tekhn.red.

[Earth is a large magnet] Zemlia - bol'shoi magnit. Leningrad, Gidrometeor. izd-vo, 1958. 58 p. (MIRA 11:9)
(Magnetism, Terrestrial)

PUDOVKIN, I.M.

Magnetic field of the Oka-Sura region of the Volga Valley and its geological interpretation. Trudy NIZMIR no.14:94-138 '59. (MIRA 12:8)

(Oka Valley--Magnetism, Terrestrial)
(Sura Valley--Magnetism, Terrestrial)

PUDOVKIN, I.M.

Spatial analysis of the structure of a magnetic field as applied to practical interpretation of anomalies. Prikl.geofiz. no.25:141-156 '60. (MIRA 13:6)

(Magnetic anomalies)
(Prospecting--Geophysical methods)

S/552/60/000/026/002/003

3,4000

AUTHOR: Pudovkin, I. M.

TITLE: A General Purpose Template for Computing H_a, Z_a, $\partial Z/\partial h$, and $\partial Z/\partial x$ for Different Horizons of an Upper Semiplane From Given Values of Z_a on the Plane of Observation

SERIAL: Vsesoyuznyy nauchno-issledovatel'skiy institut geofizicheskikh metodov razvedki. Prikladnaya geofizika. Sbornik statay, no. 26, Moscow, 1960. 99-106

TEXT: A template has been devised for readily computing the value of H_a, Z_a, $\partial Z_a/\partial h$, and $\partial Z_a/\partial h$, and $\partial Z_a/\partial x$ for different horizons of an upper semiplane and for points on a line of observation. The author derives formulas (11) and (14) which are used in association with the template for computing $\partial Z_a/\partial h$ and $\partial Z_a/\partial x$ respectively. For the computation of these formulas a simple radial template is constructed (Fig. 2) on tracing paper or celluloid. The rays of the template emerge from a single center every 10° preferably with 5 mm graduations. The procedure for reading off or deriving each of the values being sought is described. (A detailed description of the use of such templates was provided by the author in this same publication, No. 13, 1955.)

Card 1/2

A General Purpose Template for Computing ... S/552/60/000/026/002/003

Computations of these values by means of the template and theoretical formulas were compared; the table showing this comparison indicates that the values for $\partial Z_a/\partial h$ and $\partial Z_a/\partial x$ can be derived by the template from given values of Z_a on the line of observation with an error as little as 1% to 3%. If the $\partial Z_a/\partial h$ values are required at several points, then the computations which cannot be made by means of the template, must be made by numerical integration of formulas appropriate for this purpose. These formulas transformed from equations applicable to the template are presented. There are four figures.

Card 2/2

PUDOVKIN, I.M.

A few words on the criticism of V.I.Pochtarev's work "The earth's magnetic field in connection with other geophysical phenomena and the structure of the earth's crust." Izv.AN SSSR.Ser.geofiz. no.6: 922-924 Je '61. (MIRA 14:5)

(Magnetism, Terrestrial)
(Pochtarev, V.I.)

PUDOVKIN, I.M.; KOLESOVA, V.I.

Function $S(g,h)=\frac{\partial Z(g,h)}{\partial Z(o,h)\partial h}$ and its application to the interpretation of magnetic anomalies. Geomag. i aer. 1 no.5:807-819 S-O '61. (MIRA 15:1)

1. Institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln AN SSSR, Leningradskoye otdeleniye.
(Magnetic anomalies)

PUDOVKIN, I.M.; KOLESOVA, V.I.

Using geometrical forms of zero isolines in interpreting magnetic anomalies. Geomag. i aer.1 no.6:965-980 N-D '61. (MIRA 15:2)

1. Institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln AN SSSR, Leningradskoye otdeleniye.
(Magnetic anomalies)

PUDOVKIN, I.M.; KOLESOVA, V.I.

Applicability of the S(0,h) function to ΔT anomalies. Geomag. i aer. 4 no.5:928-937 S-O '64. (MIRA 17:11)

1. Institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln AN SSSR, Leningradskoye otdeleniye.

ACCESSION NR: AP4031643 S/0203/64/004/002/0376/0389

AUTHOR: Pudovkin, L. M.

TITLE: Three dimensional structure of the geomagnetic field and some questions on the study of the internal structure of the earth. 1

SOURCE: Geomagnetizm i aeronomiya, v. 4, no. 2, 1964, 376-389

TOPIC TAGS: geomagnetic field, earth structure, magnetic dipole, residual magnetic field, Ural 1 computer, BESM computer

ABSTRACT: The author has computed the Z component of the earth's field for several levels up to a height of 10 000 km. As expected, the field of Z becomes simpler with height. At some height it becomes sufficiently simple to be approximated very precisely by an experimental dipole. This circumstance permits the geomagnetic field to be divided into segments, each of which may be reliably approximated by some particular model. When the parameters of the experimental dipole are determined, the field may be computed from the observed field, but the residual field must be recomputed to a different height and kept separated from the fields of very shallow sources. When the results are placed in their simplest form, the residual

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ACCESSION NR: AP4031643

field may be approximated by the desired model. A new residual field is thus formed (i.e., a second-order residual field), and the procedure is repeated. The essential eccentricity of the geomagnetic field at great heights means that a central dipole can not be considered as representing the normal field of the earth, without running the risk of producing false anomalies. The author concludes that a residual field such as Bauer's is to a great extent a fictive field. "M. S. Efendiyeva, G. Ye. Valuyeva, B. D. Kochetkov, and I. S. Yelfimova participated in the work. The graphic material was prepared by L. A. Petkevich and V. V. Chukayeva. D. V. Igolkina, of the Leningradskiy vy*chislitel'ny*y tsentr AN SSSR (Leningrad Computer Center AN SSSR) programmed the work on the Ural-1 and BESM computers and made all the computations. L. A. Oganisyan, of the same institution, offered consultation and other valuable aid in setting up the computations. The author expresses his sincere thanks to all these comrades." Orig. art. has: 10 figures, 2 tables, and 9 formulas.

ASSOCIATION: Institut zemnogo magnetizma, ionosfery* i rasprostraneniya radiovoln AN SSSR, Leningradskoye otdeleniye (Institute of Terrestrial Magnetism, the Ionosphere, and Propagation of Radio Waves AN SSSR)

Card 2/3

L 11436-67 EWT(1)/FCC GW/GD

ACC NR: AT6021020 SOURCE CODE: UR/0000/65/000/000/0096/0100

31

AUTHOR: Pudovkin, I. M.; Pavlov, V. S.; Reshetov, B. P.; Ryazantsev, G. A.; Tanichev, A. A.

12

ORG: none

TITLE: Some results of observations of secular variations in the geomagnetic elements of Kamchatka

SOURCE: AN SSSR. Institut fiziki Zemli. Nastoyashcheye i proshloye magnitnogo polya Zemli (The present and past of the earth's magnetic field). Moscow, Izd-vo Nauka, 1965, 96-100

TOPIC TAGS: geomagnetic field, geomagnetic drift, secular variation

ABSTRACT: Local and regional characteristics of secular variations in the geomagnetic field on Kamchatka were studied experimentally in 1961 and 1962. Regional differences in the average annual values of D, H, and Z are shown in Fig. 1. From these differences isopores are constructed. The variations ranged for δD from -5.5 to + 2.4; for δH from 3 to 41γ; and for δZ from -19 to + 22γ. The quantity D was measured with an accuracy of $\pm$ 1'. 1, H with $\pm$ 5γ, and Z with $\pm$ 13γ. All three elements (δD, δH, δZ) clearly show the zonal structure of secular variations which agrees with the general orientation of the basic tectonic structure of Kamchatka. Local anomalies are illustrated in Fig. 2. According to these results, a complex morphological

Card 1/4

L 11436-67

ACC NR: AT6021020

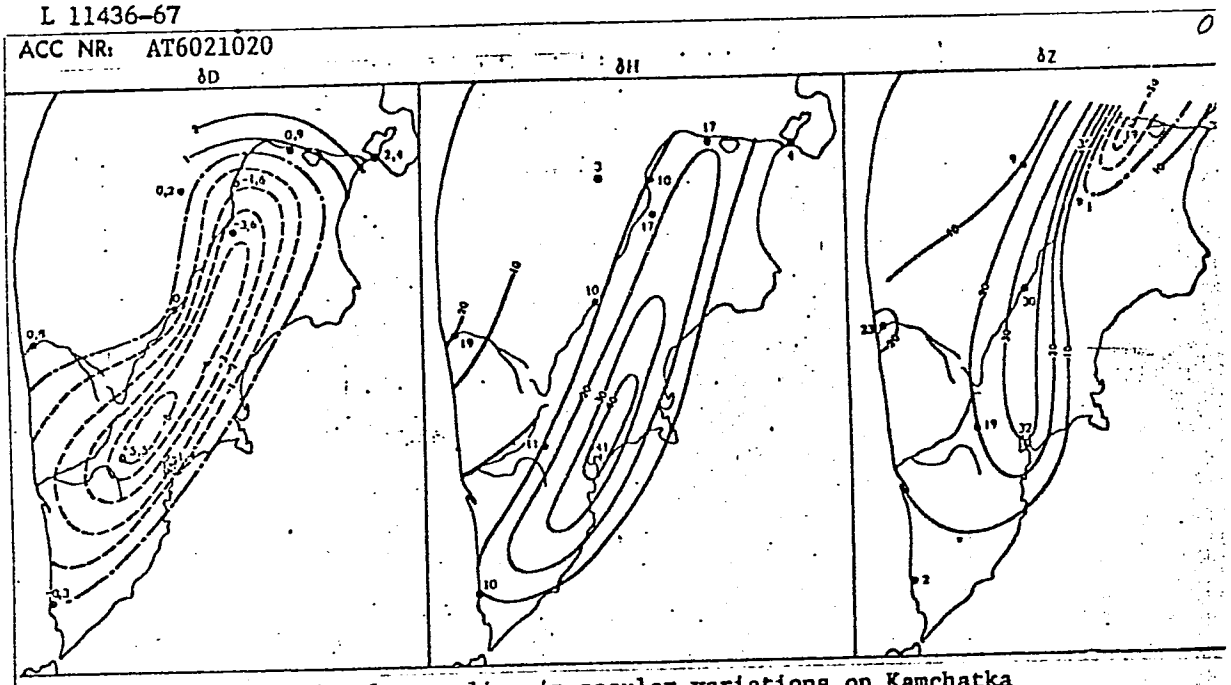

Fig. 1. Regional anomalies in secular variations on Kamchatka

Periods denote observation points; numbers near the periods show differences (1962-1961) for δD (in min), δH and δZ (γ)

Card 2/4

L 11436-67
ACC NR: AT6021020

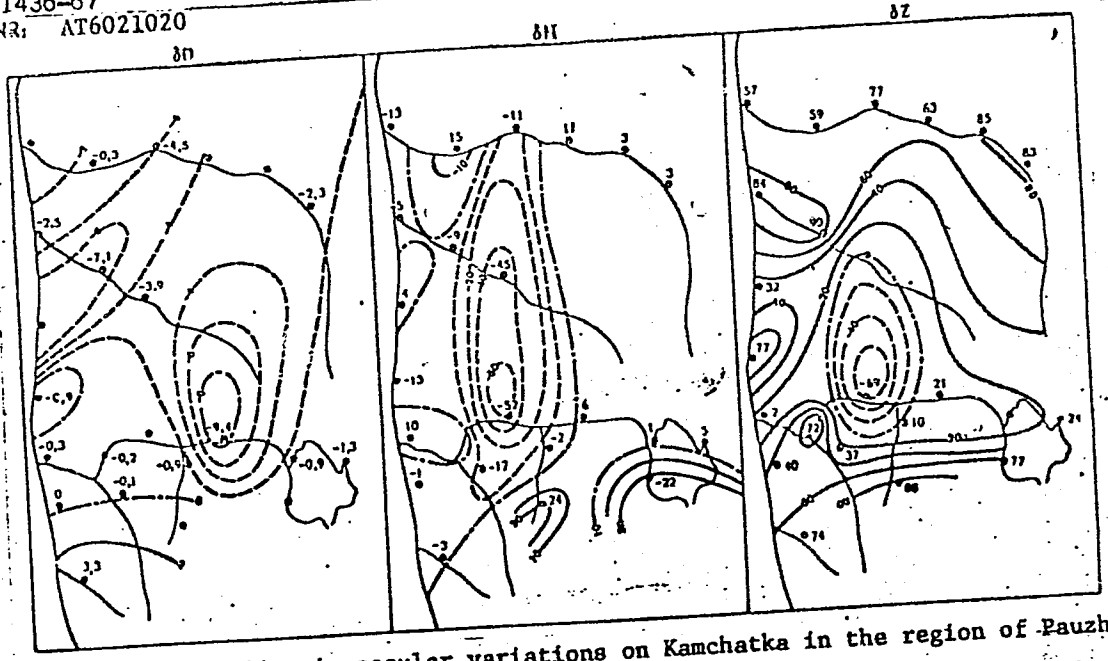

Fig. 2. Local anomalies in secular variations on Kamchatka in the region of Pauzhetka. Periods denote observation points and differences (1962-1961) for δD (in min), δH and δZ (in γ)

Card 3/4

L 11436-67 0

ACC NR: AT6021020

structure of secular variations exists on Kamchatka. Both local and regional anomalies are present. Further studies into the anomalous character of secular variations by magnetodynamic methods are recommended. Orig. art. has: 2 figures.

SUB CODE: 08/ SUBM DATE: 21Sep65

Card 4/4 lm

PUDOVKIN, I.M.

Space structure of the geomagnetic field and some problems in studying the earth's internal structure. Part 1. Geomag. i aer. 4 no.2:377-389 Mr-Ap '64.

Neumann's internal problem for a circle and its use in the analytic continuation of a potential function into the lower half-plane. Ibid.:390-396 (MIRA 17:4)

1. Institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln AN SSSR, Leningradskoye otdeleniye.

S/169/63/000/002/006/127
D263/D307

AUTHOR: Pudovkin, I. M.

TITLE: Remarks on the note 'On the problem of determining the zero level of magnetic anomalies' by G. N. Konstantinov, L. S. Konstantinova and V. A. Filatov

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 2, 1963, 44, abstract 2A258 (Geologiya i geofizika, 1962, no. 7, 109-111)

TEXT: It is pointed out that G. N. Konstantinov et al (RZhFfiz, 1961, 12A343) did not consider a number of earlier works on the determination of the zero level of the anomalies. A synopsis of the problem is given. [Abstracter's note: Complete translation.]

Card 1/1

PUDOVKIN, I.V.

Experience with pulmonary resection at a district hospital [with summary in English]. Khirurgiia 35 no.1:33-36 Ja '59. (MIRA 12:2)

1. Iz tuberkuleznogo otdeleniya 1-y gorodskoy bol'nitsy (glavnyy vrach V.I. Serebrennikov) Serpukhova i bol'nitsy "Krasnyy tekstil'shchik" (glavnyy vrach V.M. Shapiro).

(PNEUMONECTOMY,
in regional hosp. (Rus))

SOV-117-58-9-7/22

AUTHOR: Pudovkin, K.M., Engineer

TITLE: Fixture for Centering Parts (Prisposobleniye dlya tsentrovaniya detaley)

PERIODICAL: Mashinostroitel', 1958, Nr 9, p 24 (USSR)

ABSTRACT: Information is presented on a proposed new design of a fixture on a screw-cutting lathe for centering parts in repair shops. The new device, which is described and illustrated, reduces work deficiencies to a minimum and improves the quality of parts. There is 1 diagram.

1. Machine tools--Equipment

Card 1/1

PUDOVKIN, K.M., inzh.

Devices for centering machine parts. Mashinostroitel' no.9:24 S '58. (MIRA 11:10)

(Lathes--Attachments)

PUDOVKIN , M. A.

33904. K Voprosu o Popyeryechnykh Kolyebaniakh Vrashchayushchikhsya Valov. Uchyen. Zapiski Kazansk. Gos. Un-ta Im. Lyenina, T. CIX KH. 1,1949, C. 89-96.

SO: Letopis' Zhurnal'nykh Statey, Vol. 46, Moskva, 1949.

Pudovkin, M.A.

Pudovkin, M. A. On the computation of the axis of a bent beam. Doklady Akad. Nauk SSSR (N.S.) 77, 993–995 (1951). (Russian)

The author considers a beam with arbitrary supports at the ends and arbitrary loads in one plane. The loads, if discontinuous, have a finite number of discontinuities n. By integrating n times the general differential equation of the bending curve and transforming the multiple integrals, the solution of the equation in terms of Stieltjes integral is obtained. The solution can also be expressed as a Volterra integral equation. The shearing force, the bending moment and the angle at the support can be evaluated from the solution by differentiation. *T. Leser* (Lexington, Ky.).

Source: Mathematical Reviews, Vol 13No. 1

PUDOVKIN, M.A.

Dirichlet formula of the change of order of intergration for Stieltjes generalized integrals. Trudy KKHTI no.17:135-1?? '52 [publ. '53]. (MIRA 12:11)

(Integrals, Generalized)

FUDOYKIN, M.A.

Motion of a water-petroleum boundary layer in one-dimensional flow.
Trudy MINKhI no.13:169-181 '53 [publ. '54]. (MIRA 12:11)
(Fluid dynamics)

PODOVKIN

Tyabin, N. V., and Pudovkin, M. A. The flow of a viscous-plastic dispersive system in a conical diffusor. Doklady Akad. Nauk SSSR (N.S.) 92, 53–56 (1953). (Russian)

Les auteurs étudient l'écoulement d'un milieu dispersif, doué de viscosité plastique, dans un diffuseur conique. Le phénomène est régi par les équations écrites par Tyabin; celles-ci sont simplifiées, dans le cas particulier considéré, en utilisant les conclusions expérimentales de la thèse de Mme Lazovsky; en particulier les déplacements peuvent être considérés comme radiaux. Les auteurs tiennent compte de ces faits pour former les expressions approchées des solutions des équations de Tyabin; les formules résolutives sont assez simples pour permettre une discussion détaillée de toutes les particularités du phénomène. Entre autres résultats, les auteurs donnent la loi du débit total en fonction de la pression; la relation qu'ils obtiennent est linéaire et paraît en bon accord avec l'expérience pour de grandes pressions.

J. Kravtchenko (Grenoble).

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Application of operational methods to the solution of the problem of advancement of the water-petroleum contact in case of a one-dimensional flow in an elastic semi-infinite layer. Uch. zap. Kaz. un. 113 no.10:139-154 '53. (MLRA 10:6)
(Petroleum engineering) (Fluid dynamics)
(Functions of complex variables)